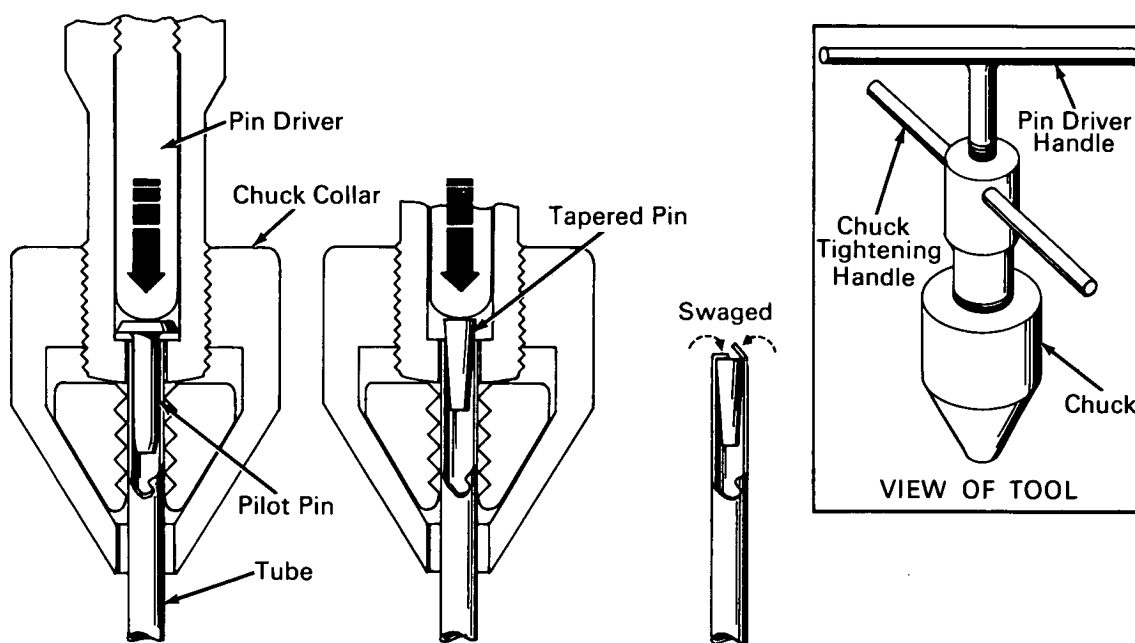


NASA TECH BRIEF



This NASA Tech Brief is issued by the Technology Utilization Division to acquaint industry with the technical content of an innovation derived from the space program.

Tool Facilitates Sealing of Metal Fill Tubes



The problem: Heatless sealing of metal fill tubes containing corrosive, flammable, or explosive liquids. Such liquids, when subjected to the extreme heat required to braze or weld metal fill-tube seals, present a fire, explosive, or noxious-vapor hazard.

The solution: A hand tool that aligns the fill tube and drives a tapered metal pin into the tube. The neck of the tube is then swaged over the top of the pin to form a tight seal.

How it's done: The chuck of the hand tool is fitted about the fill tube and tightened. A headed pilot pin is then dropped into the open end of the tube to align the tube with the pin driver. After alignment, the pin

driver and alignment pin are removed and the tapered sealing pin is dropped in. The pin driver is then replaced and tightened until the top of the sealing pin is driven below the neck of the fill tube. The neck of the tube can then be swaged over the top of the tube to form a tightly sealed joint.

This method eliminates the need for high temperatures or open flame and therefore can be safely used with flammable or explosive liquids in the tubes or in areas where such liquids may be handled. It provides a more reliable seal than is possible with crimping and does not introduce the high stress concentrations common to crimped joints.

(continued overleaf)

Note:

For further information about this innovation inquiries may be directed to:

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Reference: B63-10519

Patent status: NASA encourages commercial use of this innovation. No patent action is contemplated.

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